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UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Manabu OHTA, et al.
Application: DEVICE AND METHOD FOR DETERMINING RARE SHORT
CIRCUIT
Serial No.: 09/944,698
Filing Date: August 31, 2001
Art Unit: 2836
Examiner: Ronald W. Leja
Atty Dkt: 0154/01025

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited per 37 C.F.R. §1.8 with the United States Postal service as first class mail on the date indicated below in an envelope addressed to the P.O. Box 1450, Commissioner for Patents, Alexandria, VA 22313-1450.

Kimwanza Buford
Name of Representative

Kimwanza Buford
Signature

10/26/04
Date

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PETITION TO WITHDRAW FROM ISSUE AFTER PAYMENT OF ISSUE FEE
PER 37 C.F.R. § 1.313(b)(5)

Dear Sir:

Applicant hereby petitions to withdraw the above-identified patent application from issue. The appropriate petition fee per 37 C.F.R. 1.17(i) is enclosed herewith.

The Applicant seeks withdrawal at this time so that the Office may consider prior art in a continuing application, per 37 C.F.R. 1.97. The prior art was recently disclosed to the Applicant upon a September 16, 2004 grant of a co-pending Russian patent application (grant attached hereto).

Respectfully submitted,
CHERSKOV & FLAYNIK

10/29/2004 SDENB0B1 00000067 09944698

01 FC:1460

130.00 OP

By: *Michael J. Cherskov*

Michael J. Cherskov (Reg. # 33,664)

13 СЕН 2004



ФЕДЕРАЛЬНЫЙ ИНСТИТУТ
ПРОМЫШЛЕННОЙ СОБСТВЕННОСТИ

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Телефон 240 60 15. Телекс 114818 ПДЧ. Факс 243 33 37

701 ДЕЛ № 28

На № 2412-125003/7112 от 19.07.2004

129010, Москва, ул. Б. Спасская, 25, строение 3,
000 "Юридическая фирма Городисский
и Партнеры", пат. пов. Ю. Д. Кузнецову,
рег. № 595

(21) Наш № 2001124422/28(026052)

При переписке просим ссылаться на номер заявки и
сообщить дату получения данной корреспонденции

Date G&P: 16/09/2004



0001487553

РЕШЕНИЕ О ВЫДАЧЕ
ПАТЕНТА НА ИЗОБРЕТЕНИЕ

(21) Заявка № 2001124422/28(026052)

(22) Дата подачи заявки 03.09.2001

(24) Дата начала отсчета срока действия патента 03.09.2001

(85) Дата начала рассмотрения международной заявки на национальной фазе
ПРИОРИТЕТ УСТАНОВЛЕН ПО ДАТЕ

☐ (22) подачи заявки

☐ (23) поступления дополнительных материалов от
к ранее поданной заявке № от

☐ (62) ☐ приоритета изобретения по первоначальной заявке № от
из которой данная заявка выделена

☐ подачи первоначальной заявки № от
из которой данная заявка выделена

☐ (66) подачи ранее поданной заявки № от

☒ (30) подачи первой заявки в государстве-участнике Парижской конвенции

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1. 2000-267402	04/09/2000	JP	1 - 5
2.			
3.			

(86) Заявка №РСТ/

(96) Заявка №ЕА

(87) Номер публикации и дата публикации заявки РСТ

(72) Автор(ы) ОХТА, Манабу, СИБАТА, Хидеки, JP

(73) Патентообладатель(и) ПАСИФИК ИНДЖИНИРИНГ КОРП., JP

(51) МПК 7 В 60 R 16/02, Н 02 Н 7/00

(указать код строки ...)

(54) Название изобретения Устройство и способ определения кратковременного короткого замыкания

Your reference: **P1P2001106RU**
Our reference: **2412-125003/7112**
Application No.: **2001124422**
Attorney Name: **Yury D.Kuznetsov**

TRANSLATION

**DECISION ON GRANT
PATENT FOR INVENTION**

(21) Application № **2001124422/28(026052)**. (22) Date of filing the application **03 September 2001**
(24) Date from which industrial property rights may have effect **03 September 2001**
(85) Date of commencement of the national phase

PRIORITY IS FIXED ON DATE

- ☐ (22) Date of filing the application
☐ (23) Date of filing of additional materials of to the earlier application №
☐ (62) ☐ priority date of the application № of from which the present application has been divided up
☐ filing date of the application № of from which the present application has been divided up
☐ (66) Filing date of the earlier application №

☒ (30) Data relating to priority under the Paris Convention

(31) Number assigned to priority application	(32) Date of filing priority application	(33) Country code	Claim
2000-267402	04 September 2000	JP	1-5

(86) PCT Application number and date of .

(87) PCT Publication number and date of .

(72) Inventor(s) **OHTA, Manabu, SIBATA, Hideki, JP**

(73) Assignee(s) **PACIFIC ENGINEERING CORP., JP**

(51) **IPC 7 B60R 16/02, H02H 7/00**

(54) Title **DEVICE AND METHOD FOR DETERMINING RARE SHORT CIRCUIT**

The Department of Instrument-making and Measurement Engineering basing on the results of substantive examination of the patent application conducted in respect to

☐ originally filed claims ☒ claims amended by the applicant

has revealed their concordance to the requirements of patentability set forth by Article 4 of the current Patent Law of the Russian Federation and decided to grant the Patent of the Russian Federation for the following claims: **1-5**

(21) 2001124422/28

(54)(57)

1. A rare short circuit determining device for determining whether a rare short circuit, which results from the generation of heat exceeding a predetermined value, has occurred in a load circuit, the rare short circuit determining device comprising:

a sensor for detecting a load current, which flows through the load circuit, and for generating a detection signal; and

a determining circuit connected to the sensor for determining whether a rare short circuit has occurred, wherein the determination circuit includes a memory for storing a predetermined reference current value, a predetermined arc heat, and a predetermined radiated heat per unit time; and a processor for executing a program for calculating a total heat of the load circuit every predetermined time interval based on the detection signal, a first time period during which the load current exceeds the predetermined reference current value, a second time period during which the load current is less than or equal to the predetermined reference current value,

wherein if an overcurrent has been detected, the processor calculates a joule heat based on the detection signal and the first time period and adds the calculated joule heat to a previously calculated total heat to obtain a total heat,

wherein if an overcurrent has not been detected in the present execution of the program and an overcurrent was detected during the previous execution of the program, the processor adds the predetermined arc heat to a previously calculated total heat to obtain a total heat,

wherein if an overcurrent has not been detected in the present execution of the program and an overcurrent was not detected during the previous execution of the program, the processor calculates radiated heat, which is radiated from the load circuit, based on the second time period and the predetermined radiated heat per unit time and subtracts the calculated radiated heat from a previously calculated total heat to obtain a total heat, and

wherein the determining circuit determines Whether a rare short circuit has occurred based on the total heat.

2. The rare short circuit determining device according to claim 1, wherein the determining circuit is connected to a shutdown circuit for stopping the supply of the load current from a power supply to the load circuit, and wherein the determining circuit controls the shutdown circuit to stop supplying the load circuit with the load current when it is determined that a rare short circuit has occurred.

3. The rare short circuit determining device according to claim 1, wherein the determining circuit determines that a rare short circuit has occurred when the total heat exceeds a threshold value stored in the memory.

4. The rare short circuit determining device according to claim 3, wherein the determining device is connected to a shutdown circuit for stopping the supply of the load current from the power supply to the load circuit, and wherein the determining circuit controls the shutdown circuit to stop supplying the load circuit with the load current when it is determined that a rare short circuit has occurred.

5. A method for determining whether a rare short circuit, which results from the generation of heat exceeding a predetermined value, has occurred in a load circuit, the method comprising the steps of:

detecting a load current that flows through the load circuit to generate a detection signal;

comparing the load current with a reference current value based on the detection signal;

executing a program for calculating a total heat of the load circuit every predetermined time interval based on the detection signal, a first time period, during which the load current exceeds a predetermined reference current value, and a second time period, during which the load current is less than or equal to the predetermined reference current value, wherein the total heat is calculated in such a way:

if an overcurrent has been detected, a joule heat is calculated based on the detection signal and the first time period, and the calculated joule heat is added to a previously calculated total heat to obtain a total heat,

if an overcurrent has not been detected in the present execution of the program and an overcurrent was detected during the previous execution of the program, a predetermined arc heat is added to a previously calculated total heat to obtain a total heat,

if an overcurrent has not been detected in the present execution of the program and an overcurrent was not detected during the previous execution of the program, radiated heat, which is radiated from the load circuit, is calculated based on the second time period and a predetermined radiated heat per unit time, and the calculated radiated heat is subtracted from a previously calculated total heat to obtain a total heat;

determining whether the total heat has exceeded a predetermined value; and
stopping the supply of the load current to the load circuit when the total heat exceeds the predetermined value.

Your reference: P1P2001106RU
Our reference: 2412-125003/7112
Application No.: 2001124422
Attorney Name: Yury D.Kuznetsov

Decision on Grant

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JP 7131925 A, 19.05.1995
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RU 2092867 C1, 10.10.1997

For publication of information on issuance the patent the drawings (fig.1 and 2a, 2b) of invention as submitted by the applicant and amended drawings (fig.3) shall be used.

ENCLOSURE: The Abstract amended by the Examiner in 1 copy on 1 page.

State Senior Patent Examiner